

CLAIM OR CLAIMS

WHAT IS CLAIMED IS:

1. A method of monitoring a transport stream of a compressed video signal comprising the steps of:
 - 5 extracting an information element from the transport stream;
 - generating a message of a predetermined type dependent on the extracted information element;
 - 10 assigning a priority to the message, the priority being dependent on a predetermined criticality of the predetermined type to the integrity of the compressed video signal;
 - adding the message to a message queue if the priority of the message exceeds a variable threshold priority level;
 - 15 adjusting the variable threshold priority level in dependence upon whether a size of the message queue is within a predetermined range to obtain an adjusted variable threshold priority level, discarding messages in the message queue having a priority less than the adjusted variable threshold priority level; and
 - 20 analyzing a next message from the message queue according to the predetermined type of the next message.

2. The method as recited in claim 1 wherein the adjusting step comprises the steps of:

increasing the variable threshold priority level to a higher level as the adjusted variable threshold priority level if a size of the message queue exceeds a predetermined maximum size;

discarding the messages in the message queue having a priority less than the adjusted variable threshold priority level; and

otherwise reducing the variable threshold priority level to a lower level as the adjusted variable threshold priority level if the size of the message queue is less than a predetermined minimum size.

3. The method as recited in claim 2 wherein the reducing step comprises the steps of:

determining an elapsed time since the level of the variable threshold priority level was last changed; and

reducing the level of the variable threshold priority level as the adjusted variable threshold priority level if the elapsed time exceeds a predetermined hysteresis time.

4. The method as recited in claim 1 wherein the analyzing step comprises the steps of:

registering as to which predetermined types of messages each analyzer module of a plurality of analyzer modules processes; determining the predetermined type of the next message; and dispatching the next message to at least one of the analyzer modules which is registered to process the predetermined type of the next message.

5. The method as recited in claim 4 wherein the adjusting step comprises the step of informing each of the analyzer modules which is registered to process the predetermined types of messages when there is a change.

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6. The method as recited in claim 1 further comprising the step of outputting results of the analyzing step to a user interface.

7. The method as recited in claim 1 further comprising the step of logging results of the analyzing step.

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8. An apparatus for monitoring a transport stream of a compressed video signal comprising:

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means for extracting an information element from the transport stream;
means for generating a message of a predetermined type dependent
upon the information element extracted;

means for assigning a priority to the message dependent on a predetermined criticality of the predetermined type of message to the integrity of the compressed video signal;

5 means for adding the message to a message queue if the priority of the message exceeds a variable threshold priority level, and otherwise discarding the message;

10 means for adjusting the variable threshold priority level in dependence upon whether a size of the message queue is within a predetermined range to obtain an adjusted variable threshold priority level, discarding the messages in the message queue having a priority less than the adjusted variable threshold priority level; and

means for analyzing each predetermined type of message from the message queue.

15 9. The apparatus as recited in claim 8 wherein the adjusting means comprises:

means for increasing the variable threshold priority level to a higher level dependent upon whether a size of the message queue exceeds a predetermined maximum size;

20 means for discarding the messages in the message queue having a priority less than the adjusted variable threshold priority level; and

means for reducing the variable threshold priority level to a lower level as the adjusted variable threshold priority level dependent upon whether the size of the message queue is less than a predetermined minimum size.

5 10. The apparatus as recited in claim 8 wherein the analyzing means comprises:

means for registering which of a plurality of analyzer modules that form the analyzing means process which predetermined types of messages; and

10 means for dispatching a next message from the message queue to each analyzer module registered to process the predetermined type of the next message.

15 11. The apparatus as recited in claim 10 wherein the analyzing means comprises means for informing respective ones of the analyzer modules of changes in whether messages of the predetermined types registered for processing by the respective analyzer modules are currently being added to the message queue by the adding means.

20 12. The apparatus as recited in claim 9 wherein the adjusting means comprises means for determining an elapsed time since the variable threshold priority level was last changed so that the variable threshold priority level is reduced by the reducing means if the size of the message queue is

less than the predetermined minimum size and the elapsed time exceeds a predetermined hysteresis time.

13. The apparatus as recited in claim 8 further comprising means for outputting results from the analyzing means.
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14. The apparatus as recited in claim 8 further comprising means for logging results of the analyzing means.
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15. The method as recited in claim 1 wherein the analyzing step comprises the steps of:
 - identifying from the messages in the message queue a program association table having a list of packet identifiers of program map tables associated with each of a plurality of programs in the transport stream;
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 - generating from the program association table a checklist having members representative of respective ones of the packet identifiers in the program map tables in the transport stream and the associated programs;
 - and
 - analyzing the messages to detect the program map tables to determine whether for each member of the checklist there is a program map table packet identifier for the associated program.
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16. The method as recited in claim 15 wherein the identifying step comprises the steps of:

detecting a version change in the program association table from a prior program association table; and

5 suspending analysis of the messages for a predetermined period of transport stream time around the program association table in which the version change is detected.

10 17. The method as recited in claim 15 wherein the identifying step comprises the steps of:

detecting a version change in the program map table from a prior program map table; and

15 suspending analysis of the messages for a predetermined period of transport stream time around the program map table in which the version change is detected.

18. The method as recited in claim 1 wherein the analyzing means comprises the steps of:

20 identifying from the messages in the message queue a program association table having a transport stream identifier and a plurality of program numbers with each of the programs numbers being associated with one of a respective program in the transport stream;

generating from the program association table a checklist of members representative of the respective program numbers;

analyzing the messages to detect a service description table having a transport identifier and a second plurality of program numbers and associated
5 program descriptions; and

determining whether for each member of the transport stream for the transport stream identifier corresponding to the service description table there is a program number and program description in the service description table.

10 19. The method as recited in claim 18 wherein the identifying step comprises the steps of:

detecting a version change in the program association table from a previous program association table; and

15 suspending analysis of the transport stream for a first predetermined period of transport stream time around the program association table in which the version change is detected.

20. The method as recited in claim 19 wherein the analyzing step comprises the steps of:

20 detecting a version change in the service description table from a previous service description table; and

suspending analysis of the transport stream for a second predetermined period of transport stream time around the service description table in which the version change is detected.

5 21. The method as recited in claim 18 wherein the analyzing step comprises the steps of:

detecting a virtual channel table in the service description table; and

10 determining whether for each member of the checklist for the transport stream identifier of the virtual channel table there is a program number and program description in the virtual channel table.

22. The method as recited in claim 1 wherein the analyzing step comprises the steps of:

15 identifying from the messages in the message queue a master guide table having a transport stream identifier and a list of event information tables of programs transmitted in the transport stream in consecutive periods of time;

20 analyzing the master guide table to determine the presence or absence of a terrestrial transport stream identifier and, if present, the presence or absence of a predetermined number of event information tables including a current event information table of programs currently being transmitted; and

25 outputting signals representative of results of the analysis to the user interface.